



Name: Introduction to FirstClass

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## Introduction to FirstClass

FirstClass is a cost-effective, highly scalable, feature-rich messaging and communications solution for enterprises, learning organizations, governments and service providers. At the foundation of our FirstClass Communications Platform is our Collaborative Groupware, which provides our users with the ability to:

- Build Online Communities
- Provide Unified Communications
- Lower Total Cost of Ownership

FirstClass is:

Secure

Feature Rich

Cost Effective

FirstClass has been used by thousands of organizations to create powerful online electronic communities that enable individuals and groups of people to work more effectively.

FirstClass Products:

FirstClass for Schools - FirstClass enables organizations learning to create complete online learning communities. Teachers, students, parents, administrators, and the community can all collaborate. Building and sharing learning materials and providing easy access to course information and local provincial/state requirements ensure a rich learning environment

FirstClass for Education - Higher Ed - FirstClass enables universities and distance education and distance education organizations - to cost-effectively and securely improve overall communications and the collaborative process among educators, students and the community.

FirstClass for Businesses - FirstClass enables educational institutions to improve overall communications and the collaborative process among educators, students and the community. Our Platform not only boasts a lower total cost of ownership, but also provides superior performance in a reliable and scalable solution. We ensure the utmost in security via a robust message store and access control system through a full encrypted connection with a powerful communications and collaboration solution that is much richer than basic email products. FirstClass will help you achieve:

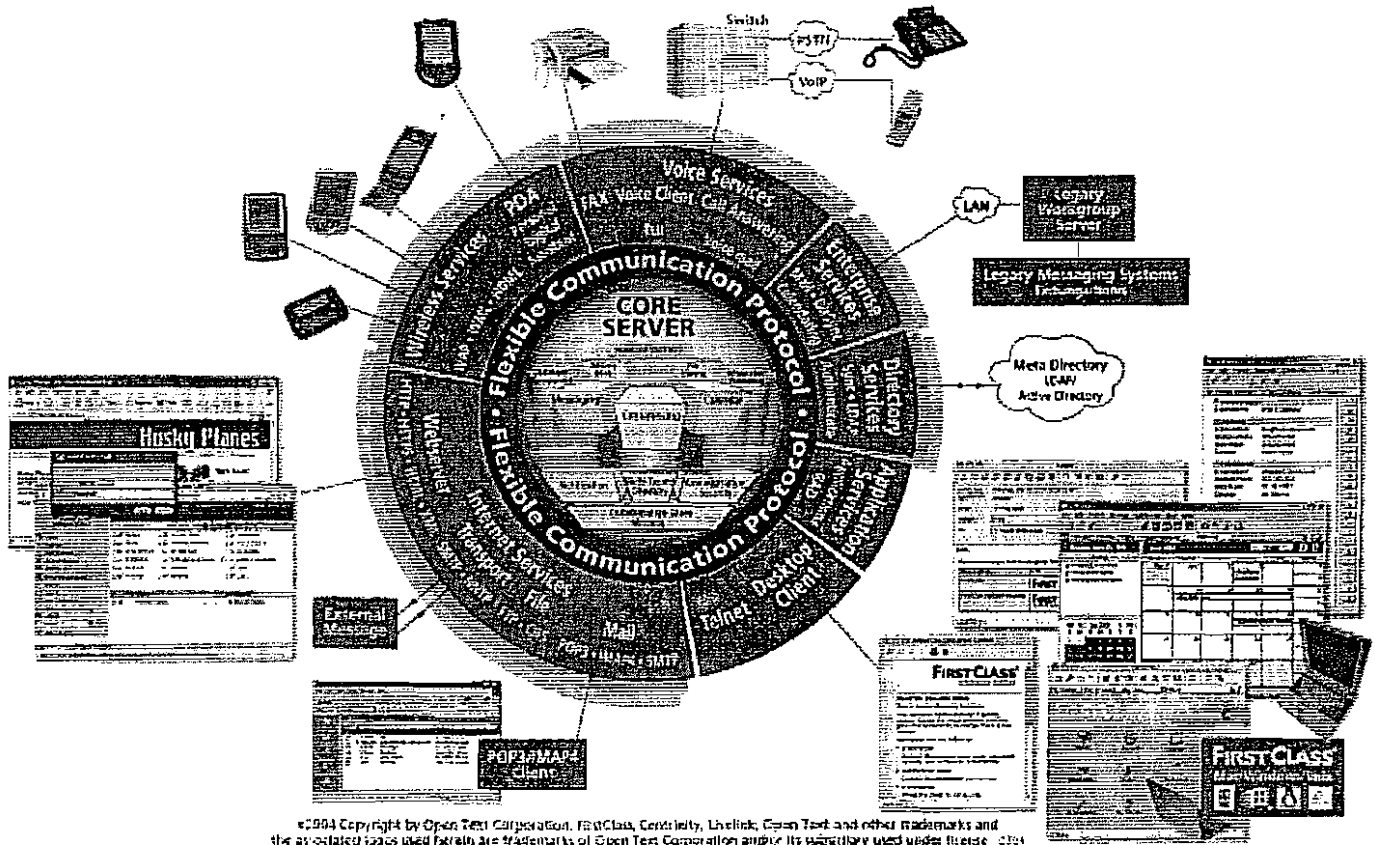
- productivity
- operational efficiency
- teamwork
- customer responsiveness

All with a lower cost of ownership. Simply put, it does more and costs less.

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# FIRSTCLASS®

## Core Server Architecture



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### The Perfect Technology for Unified Messaging

Accessible through one graphical user interface and independent of network connection path or device, the Unified Messaging (UM) module of FirstClass is the first of its kind to consolidate email, voice mail and fax in a single inbox through a collaborative digital data store. Unlike other integrated collaborative environment (ICE) and UM products, applications based on the FirstClass architecture leverage one collaborative digital data store to facilitate knowledge management through communication and collaboration.

### Architecture with Vision

The FirstClass architecture, designed by the engineering team that developed the Meridian Mail system at Nortel Networks™, is unparalleled for its superb performance, accessibility from multiple devices and seamless integration of innovative features. FirstClass architecture is not just architecture for today; it is also the perfect architecture for tomorrow, designed to support emerging communication technologies.

### A Proven System for Next-Generation Networking

The FirstClass system has proven reliability. Whether used by a school board that supports 100,000 users on a single server or an advertising agency that transfers 10 GB of data a day, FirstClass is known and respected worldwide as a robust, reliable, secure tool that delivers unparalleled productivity to end users. By focusing on providing users with easy access to the features they need, we have created the ideal platform for a next-generation Net.

### Technical Advantages of FirstClass

One of the key technical advantages that all FirstClass products benefit from is the carefully layered approach to system architecture.

### **Fully Integrated Functionality**

At the center of the FirstClass system is the FirstClass **Core Server**. The Core Server implements all of the functionality required for FirstClass, with such central components as a **messaging** subsystem, a **collaboration** subsystem, and a **calendar** subsystem. Each of these subsystems is fully integrated, so that users may switch seamlessly between messaging, collaboration and calendaring.

The Core Server functionality is implemented using a number of common components:

- the Collaborative Store (CS)
- the Secure Extensible Directory (SXD)
- the Automated Group Management (AGM)

Each of these components is designed to ensure that all of the Core Server subsystems have access to a consistent set of services for message and document storage, user management and content security. The CS is a key differentiator between FirstClass and almost all other commercial email and groupware. Most groupware is built on top of database technology, which was originally designed to store traditional database content (e.g. accounting, customer records, etc.). Such disk organization is unsuitable for the needs of a collaborative or messaging system because of the massive churn that takes place over a relatively short period. Traditional database architecture rapidly deteriorates under such conditions, resulting in servers that become slower and slower over time. In contrast, FirstClass CS recognizes these patterns, is optimized to handle them and does not deteriorate over time.

Although not shown in the diagram, the entire FirstClass Core Server runs inside the FirstClass MicroSlice RT kernel, allowing FirstClass to deliver real-time performance to tens, or even hundreds, of thousands of users on a single server.

### **The FirstClass Platform Conduits**

Since we are not in the business of promoting any single proprietary operating system or device, FirstClass is designed around the idea of the multi-platform universe, one in which individuals will use multiple devices and platforms to access the data they need. FirstClass accommodates this philosophy through two mechanisms:

- the Platform Conduit Layer (PCL)
- the Abstract Protocol Layer (APL)

The PCL performs a critical role: It takes the binary user content (such as mail, address books, calendars, etc.) that is stored and managed by the FirstClass Core Server and converts the binary data to the format required by a given platform or device. For example, the Web PCL takes the user content and converts it into HTML that may be viewed using any Web browser. Or, the Palm TM PCL takes the same user data and converts it to a format understood by any Palm device. Of course, these conduits will also work in the opposite direction, that is, take data from another device or protocol and store it in the FirstClass Core Server. The APL is a rich, real-time protocol that the PCL uses to communicate to the FirstClass Core Server and to access every one of its functions.

### **The Client Layer**

The Client Layer (CL) is the only software that the end user will actually see. With systems such as Lotus @Notes or Microsoft @Exchange, end users must download complex, expensive software and install it on their computers. One of the key benefits of the FirstClass architecture is that users may choose the client that is right for them. Since the PCL works "on the fly," they can use multiple devices and platforms to access the data that matters to them – their messages, address book, calendar, and so on. Only FirstClass allows so many devices to seamlessly access the users' core data.

### **FirstClass: a Holistic System**

By building a holistic system that comprises several discrete layers, FirstClass has created a powerful server that combines performance, reliability and universal accessibility. In the FirstClass architecture, each of the layers may be extended without disturbing the others. Starting at the outer, or Client, layer, we are seeing an

explosion of new devices and protocols for end users. From smart phones to video games with network connections, there is a wide range of new clients. When a new device appears on the market, with the construction of a new conduit in the PCL for that device, FirstClass and its partners are able to provide users with complete access to the FirstClass Core Server. Similarly, the addition of functionality to the FirstClass Core Server layer will be immediately available to all of the PCLs, and by extension to all of the various devices and platforms in the Client Layer.